



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – BIOTECHNOLOGY

SECOND SEMESTER – NOVEMBER 2016

BT 2826 - ENVIRONMENTAL BIOTECHNOLOGY

Date: 08-11-2016
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

PART – A

Answer all the questions

I Choose the correct answer

(5 x 1 = 5 Marks)

1. Introduction of a group of natural microbial strains to treat contaminated soil or water
a) Bioventing b) Bioaugmentation c) Biopiling d) Bioreactors
2. Which of the following can be seen in marine environment?
a) halophile b) psychrophile c) barophile d) all the above
3. Bioventing is used for degradation of
a) norganic matter b) carbons c) aerobically degradable compounds d) plastics
4. Source of glucosidase biomarker
a) *Pyrococcus* b) *Vibrio* c) *Pseudomonas* d) *Salmonella*
5. Which of the following can be seen in marine environment?
a) halophile b) psychrophile c) barophile d) all the above

II State whether the following are true or false

(5 x 1 = 5 Marks)

6. Trophosphere is characterized by heavy load of microorganisms.
7. Bioremediation by plants is called bioventing.
8. In green house there is physical obstruction of the gases.
9. Nitrification and denitrification are the important anaerobic reactions in sewage treatment.
10. Energy and carbon enter the ecosystem through photosynthesis.

III Complete the following

(5 x 1 = 5 Marks)

11. The study of flora of lakes and ponds is referred to as _____.
12. Carbon is present in atmosphere mainly in the form of _____.
13. Bioremediation by plants is called _____.
14. Organisms which survive in high temperature are called _____.
15. Widely used coagulant in water treatment _____.

IV Answer the following, each within 50 words only

(5 x 1 = 5 Marks)

16. What is algal bloom?
17. What is breakpoint chlorination?
- 18 List the enzymes involved in biodegradation of petroleum hydrocarbons.
19. How are melanoidins formed?
20. List the advantages of biolubricants?

PART – B

(5 × 8 = 40 Marks)

Answer the following, each within 500 words. Draw diagrams wherever necessary.

21. (a) Discuss the role of microbes in maintenance of sulphur cycle.

OR

(b) Discuss the different types of symbiotic associations between microbes and other organisms.

22. (a) Write briefly on activated sludge process and the problems associated with it.

OR

(b) Give an account of the different types of aquatic ecosystem.

23. (a) Give an account of the bacterial synthesis of PHA.

OR

(b) Discuss the use of genetically engineered bacterial strains for bioremediation.

24. (a) Write briefly on the types of recalcitrant Xenobiotic compounds.

OR

(b) Explain the different methods of effluent treatment from the Dye industry.

25. (a) Give a brief account of *Deinococcus radiodurans* and its impact on the environment.

OR

(b) Write briefly on the mechanism of bioleaching of Copper and Uranium.

PART – C

(2 × 20 = 40 Marks)

Answer any TWO of the following, each within 1500 words; Draw diagrams wherever necessary.

26. Describe in detail the mechanism involved in nitrogen fixation.

27. Explain in detail the biological treatment of wastewater.

28. Describe in detail the production of biodiesel.

29. Explain the process of effluent treatment from distillery industry.
